Yorkland
SEPTEMBER 2001
Controls Connection

YORKLAND CONTROLS EXPANDS!

NEW MISSISSAUGA LOCATION IS NOW OPEN

Located at:

855 Matheson Blvd. East, Unit 4
Mississauga, Ontario L4W 2L6
Tel: 905-624-3301 • Fax: 905-624-9003

The location is a full stocking warehouse of brand name controls including:

BELIMO · fireye · Honeywell · INVENSYS · JOHNSON CONTROLS · SIEMENS

The branch includes facilities for Customer Training and will be an Authorized Repair Center for UEI instruments, Kane May analyzers and Johnson Controls RLD Refrigerant Detectors.

In this Issue

Yorkland CONTROLS

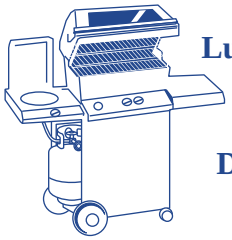
MISSISSAUGA

OPEN HOUSE

SEPTEMBER 12, 2001

BBQ AND ICE CREAM… ON THE HOUSE!

Come visit our new Mississauga branch on September 12, 2001 and treat yourself to lunch and dessert… even try out the coffee! Major suppliers will be on hand to answer questions and display new products.



Lunch will be served from 11:00 am to 3:00pm, RAIN or SHINE.

Door prizes drawn, every hour on the hour.

Yorkland Facts!

Did you know..?

- Yorkland is celebrating 30 years in business
- First major supplier…..Honeywell
- Offers Panel Building as a value added service
- Holds an annual Business Conference related to the controls industry
- Web site: www.yorkland.net

BASICS OF ENERGY MANAGEMENT CONTROL

Increasing energy costs and Utility deregulation has encouraged customers to implement various Energy Management and Conservation Measures (EMC's). Over the years control companies have lead the way in the implementation of these measures, but more recently, utilities are providing rebates to consumers and contractors for EMC implementation.

EMCs and their savings have been documented by industry organizations such as ASHREA and BOMA – the savings are real.

Understanding the terms and devices used in implementing EMC strategies helps contractors provide additional valued added services as they service existing control systems and consider recommending EMCs to customers .

Basic energy management measures that are widely in use are:

- **Time Of Day Scheduling**
- **Temperature Setback**
- **Temperature/Time Optimization**
- **Supply Temperature Reset**
- **Economizer Cycle**
- **Demand Limiting**
- **Duty Cycling**

Time Of Day Scheduling

Time of day scheduling is defined as automatically turning equipment off when it is not needed, on a predetermined time schedule. Routines must allow for holidays, weekends, daylight savings time, etc. Override features allow equipment operation when the building is occupied outside of normal hours. The override feature should not interfere with normal operation. Savings are achieved from not running equipment unnecessarily.

Typical equipment that is usually controlled by Time Of Day :

- ventilation fans
- exhaust fans
- interior lighting
- exterior lighting
- security lighting

Devices that may implement Time Of Day Scheduling are:

- electromechanical timers
- electronic timers
- stand alone controllers (electronic or Direct Digital)
- multifunction computer based systems
- lighting controls
- programmable logic controllers

Temperature Setback/Setup

Temperature setback/ setup is the adjustment of the building temperature when it is unoccupied, to minimize heating or cooling requirements.

When the building has a wide variance (irregular) building occupancy schedules, this strategy may present some problems as the override feature may not bring building temperature to normal levels quickly enough.

Evening setback/setup can be started before business hours are over to take advantage of the energy stored in the building mass. However this differs for each building type. The time required for morning startup is dependent on the ability of the HVAC equipment to heat or cool the building in a worst case situation.

Savings are achieved through the reduction in equipment operating time and the reduction in heat loss or gain through exterior walls and dependent on the length of the unoccupied time and the extent of temperature setback.

Typical equipment that is usually controlled are:

- ventilation fans
- chillers
- heaters/boilers
- air handlers

Devices that implement setback/setup are:

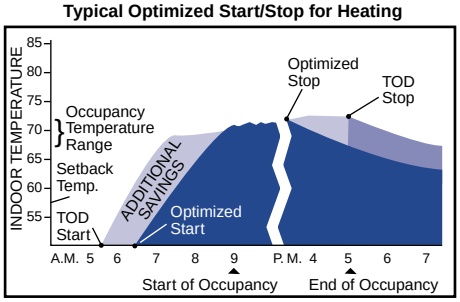
- time controllers
- programmable thermostats
- stand alone controllers
- multifunction computer based systems (Networked Systems)
- programmable logic controllers

Temperature/Time Optimization (Optimized Start-Stop)

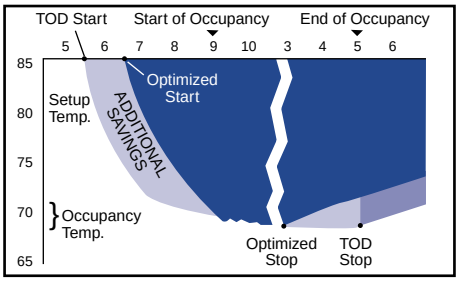
Temperature/time optimization is a more accurate control of temperature setback/setback. The strategy monitors the temperatures of the outside air and building mass to adjust the startup or setback of the HYAC system.

The savings are achieved by the warm-up or cool-down cycle using the least amount of energy to produce comfort conditions at time of occupancy.

Typical Optimized Start/Stop for Heating



Typical Optimized Start/Stop for Cooling



The optimized stop feature permits programming of selected heating and air conditioning loads to stop at a point in time before the end of the occupied period and allowing temperature to drift controlled within acceptable comfort levels during the remainder of occupancy.

The occupancy period begins at the time programmed for the Optimized Start set point. The occupancy period ends at the start of the next programmed set point. For example, assume that an

Optimized Start event is programmed for 8:00 a.m. and a Sensor Control event is programmed for 5:00 p.m. This sets the occupancy period as 8:00 a.m. - 5:00 p.m. the setback period would be active from 5:00 p.m. - 8:00 a.m. (or until optimized start-up time).

Supply Temperature Reset

Supply temperature reset is the adjustment of the temperature of supply air or water according to the building's actual heating or cooling needs.

A building's HVAC system must be designed for the worst case conditions and since these conditions only occur a portion of the time, the HVAC equipment is designed for a much higher capacity than, the building needs on average.

The outside temperature is measured and the supply air and water temperature is adjusted accordingly.

The supply temperature reset allows the HVAC system to more closely match the building's actual heating or cooling needs based on outside air temperature

Normally separate control schemes are necessary for boiler water reset and chiller water reset with the savings achieved by maintaining better temperature control of the building space, therefore avoiding overheating or overcooling the building.

In boiler systems outdoor reset controls that have a warm weather shut down function will prevent overheating of a building in spring andfall by automatically shutting down the boilers and system pump whenever heat is not needed.

Typical equipment with reset strategies are:

- Boiler hot water supply
- Chilled water supply
- Airhandler supply air temperature

Economizer Cycle

The economizer cycle uses the outside air for free cooling whenever possible. The strategy is a cooling strategy most commonly found and applied to rooftop equipment. Outside air dampers are controlled to admit additional outside air for cooling when the outdoor air temperature is below the return air temperature of the system.

When the outside air temperature is below 130C (typical) the outdoor air temperature is mixed with the return air to achieve the desired temperature.

When the outside air temperature is above 240C(typical) a minimum of outside air is used.

Enthalpy control (temperature and relative humidity) is a refinement of the economizer cycle where the moisture content of the outside air and return air temperatures are monitored.

And the air mix that will impose the lowest cooling load on the system is selected.

In the past the extra costs and complexity of enthalpy control were not normally justified over the simple economizer cycle unless the HVAC system is complex and has proper maintenance. The reduction in the cost of enthalpy sensors has lead to increased enthalpy control in economizer systems.

Savings occur with the economizer cycle by avoiding the use of mechanical cooling equipment when the outdoor air can be used in its place.

Besides packaged air handler systems, economizer cycles are found in:

- Control of chillers
- Ventilation fans
- Dampers

Demand Limiting

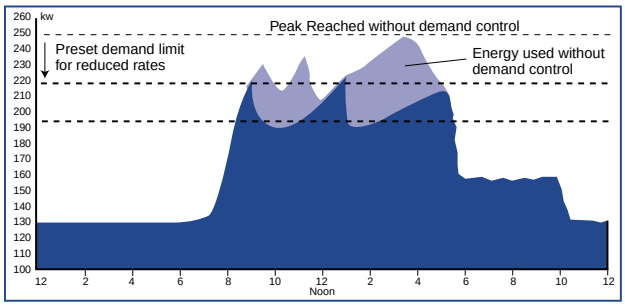
Demand limiting is the control of the monthly electrical peak demand to a preset practical level. Utility companies usually charge extra charges over the base on for peak demands.

A controller is used to disconnect or shed selected electrical loads when the peak demand of the building is approaching a preset level.

To obtain full savings on this system the controller must insure that the demand is not exceeded at any point in time throughout the entire month.

As certain loads cannot be turned on and off rapidly, the minimum off and on times of the loads should be taken into account when setting a demand control system.

A building may not have any controllable loads.



Savings can be calculated by multiplying the kilowatts saved by the monthly demand charge. Typical applications are:

- water heating
- snow melting
- space heating
- any electrical load that is nonessential or deferrable

Duty Cycling

Duty cycling is the cycling of electrical and mechanical equipment on and off to save energy while maintaining comfort conditions.

HVAC equipment is normally designed to handle worst case conditions which may allow equipment to be controlled intermittently during lower load conditions.

Some equipment, such as electric motors, may have reduced life if cycled on and off frequently.

Temperature compensation can be used on duty cycling to adjust the cycling rate to ensure that the comfort conditions are maintained.

Savings are achieved in the reduction of electrical energy and in the reduction of demand charges.

REGISTRATION FORM
YORKLAND TRAINING SESSIONS 2001 – 2002

PLEASE INDICATE WHICH SESSION YOU WILL BE ATTENDING
FAX OUR OFFICE AT: 416.661.3320

SESSION	DATE	DETAILS	FEE $ (TAXES EXTRA)	PLEASE CHECK BELOW
METASYS CONFIGURATION TOOLS	OCT.5.2001	RHCC	$120.00	❑
VYKON BY TRIDIUM	OCT.11.2001	MISSISSAUGA LOCATION	$10*	❑
VARIABLE FREQUENCY DRIVES	OCT.18.2001	MISSISSAUGA LOCATION	$10*	❑
COMBUSTION ANALYSIS	OCT.25.2001	JTAC	$20.00	❑
PNEUMATIC CALIBRATION	NOV.8.2001	MISSISSAUGA LOCATION	$10*	❑
NEW NETWORKING PRODUCTS BY JCI	NOV.15.2001	MISSISSAUGA LOCATION	$10*	❑
FLAME SAFEGUARD AND BOILER BURNER MANAGEMENT	NOV.22.2001	JTAC	$20.00	❑
DX9100 CONFIGURATION	DEC.6.2001	RHCC	$150.00	❑
DAMPER AND VALVE ACTUATORS	DEC.13.2001	MISSISSUAGA LOCATION	$10*	❑
ENERGY MANAGEMENT INCLUDING “LINKAGELESS” BURNER SYSTEMS	JAN.17.2002	MISSISSAUGA LOCATION	$10	❑
HONEYWELL *FIREYE FLAME SAFEGUARD	JAN.23.2002	MISSISSAUGA LOCATION	$10	❑

* INDICATED FEES WILL BE REIMBURSED AT THE DOOR. “NO-SHOWS” WILL FORFEIT THE REGISTRATION FEE

TORONTO LOCATION: 2689 Steeles Avenue West, Toronto, Ontario M3J 2Z8
T: 416-661-3306 F: 416-661-3320

MISSISSAUGA LOCATION: 855 Matheson Boulevard East, Unit 4, Mississauga, Ontario L3W 2L6
T: 905-624-3301 F: 905-624-9003

REGISTRATION INFORMATION:

COMPANY NAME: _____
CONTACT NAME: _____
ADDRESS: _____
E-MAIL: _____
TELEPHONE: (_____)_____
FAX: (_____)_____

PAYMENT: ❑ VISA ❑ Mastercard ❑ Invoice (Current Accounts)

Signature: _____

Exp. Date: _____/_____ Purchase Order _____

FAX THIS FORM TO:
416-661-3320

DETAILS OF SESSION WILL BE FORWARDED UPON REGISTRATION